

Claims

1. An arrayed waveguide grating, comprising;

a waveguide construction has at least one optical input waveguide, a first slab waveguide connected to an emitting side of at least one optical input waveguide, an arrayed waveguide connected to an emitting side of the first slab waveguide and constructed by a plurality of channel waveguides having lengths different from each other by set amounts and arranged side by side, a second slab waveguide connected to an emitting side of the arrayed waveguide, and a plurality of optical output waveguides arranged side by side and connected to an emitting side of the second slab waveguide;

the waveguide construction is formed on a substrate;

slab waveguides are formed by separating at least one of the first slab waveguide and the second slab waveguide on a crossing face crossing a path of light passing through the slab waveguide;

a slide moving member for reducing the temperature dependence of a center wavelength of the arrayed waveguide grating by sliding and moving at least one side of the separated separating slab waveguide along said separating face dependently on temperature is arranged; and

a length of the slide moving member is set to a length for correcting a shift of the center wavelength of the arrayed

waveguide grating from a set wavelength by plastic deformation of the slide moving direction.

2. An arrayed waveguide grating according to claim 1, wherein the slide moving member is plastically deformed by applying compression stress to the slide moving member.

3. An arrayed waveguide grating according to claim 1, wherein the slide moving member is plastically deformed by applying tensile stress to the slide moving member.

4. An arrayed waveguide grating, comprising;

a waveguide construction is formed on a substrate such that a first slab waveguide is connected to an emitting side of at least one optical input waveguide, and an arrayed waveguide constructed by a plurality of channel waveguides for propagating light transmitted from the first slab waveguide and having lengths different from each other by set amounts and arranged side by side is connected to an emitting side of the first slab waveguide, and a second slab waveguide is connected to an emitting side of the arrayed waveguide, and a plurality of optical output waveguides arranged side by side are connected to an emitting side of the second slab waveguide;

separating slab waveguides are formed by separating at least one of the first slab waveguide and the second slab waveguide on a crossing face crossing a path of light passing through the slab waveguide;

a slide moving member for reducing the temperature

dependence of a center wavelength of the arrayed waveguide grating by sliding and moving at least one side of the separated separating slab waveguides along said separating face dependently on temperature is arranged;

a hollow or a hole is formed in a displacing area of the slide moving member in its sliding direction; and

a length of said slide moving member is set to a length for correcting a shift of the center wavelength of the arrayed waveguide grating from a set wavelength by fitting a fitting member having a large insertion portion having a dimension larger than that of an opening of the hollow or the hole into said hollow or the hole.

5. An arrayed waveguide grating according to claim 4, wherein the fitting member is set to a taper screw reduced in diameter toward its tip side.

6. An arrayed waveguide grating according to any one of claims 1 to 5, wherein the slide moving member is formed by a metal.

7. A method for correcting center wavelength of an arrayed waveguide grating, comprising;

a waveguide construction has at least one optical input waveguide, a first slab waveguide connected to an emitting side of the optical input waveguide, an arrayed waveguide connected to an emitting side of the first slab waveguide and constructed by a plurality of channel waveguides having lengths different

from each other by set amounts and arranged side by side, a second slab waveguide connected to an emitting side of the arrayed waveguide, and a plurality of optical output waveguides arranged side by side and connected to an emitting side of the second slab waveguide;

the waveguide construction is formed on a substrate;

separating slab waveguides are formed by separating at least one of the first slab waveguide and the second slab waveguide on a crossing face crossing a path of light passing through the slab waveguide;

a slide moving member for reducing the temperature dependence of a center wavelength of the arrayed waveguide grating by sliding and moving at least one side of the separated separating slab waveguides along said separating face dependently on temperature is arranged in the arrayed waveguide grating; and

the center wavelength of the arrayed waveguide grating is set to a set wavelength by moving at least one side of said separating slab waveguide along said separating face by plastically deforming the slide moving member.

8. A method for correcting center wavelength of an arrayed waveguide grating according to claim 7, wherein the slide moving member is plastically deformed by applying compression stress to said slide moving member.

9. A method for correcting center wavelength of an arrayed

waveguide grating according to claim 7, wherein the slide moving member is plastically deformed by applying tensile stress to the slide moving member.

10. A method for correcting center wavelength of an arrayed waveguide grating, comprising;

a waveguide construction has at least one optical input waveguide, a first slab waveguide connected to an emitting side of the optical input waveguide, an arrayed waveguide connected to an emitting side of the first slab waveguide and constructed by a plurality of channel waveguides having lengths different from each other by set amounts and arranged side by side, a second slab waveguide connected to an emitting side of the arrayed waveguide, and a plurality of optical output waveguides arranged side by side and connected to an emitting side of the second slab waveguide;

the waveguide construction is formed on a substrate;

separating slab waveguides are formed by separating at least one of the first slab waveguide and the second slab waveguide on a crossing face crossing a path of light passing through the slab waveguide;

a slide moving member for reducing the temperature dependence of a center wavelength of the arrayed waveguide grating by sliding and moving at least one side of the separated separating slab waveguides along the separating face dependently on temperature is arranged in the arrayed waveguide

grating;

a hollow or a hole is formed in a displacing area of the slide moving member in its sliding direction; and

a length of said slide moving member in the sliding direction is changed and at least one the of the separating slab waveguide is moved along the separating face by fitting a fitting member having a large insertion portion having a dimension larger than that of an opening of the hollow or the hole into said hollow or the hole so that the center wavelength of the arrayed waveguide grating is set to a set wavelength.

11. A method for correcting center wavelength of an arrayed waveguide grating according to any one of claims 7 to 10, wherein, while the center wavelength of the arrayed waveguide grating is monitored, a movement along the separating face of the separating slab waveguide is made by the slide moving member so as to set the monitored center wavelength to the set wavelength.